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Titbits

Acting out the past.

Procedural/episodic memory dissociation in arts and media.

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“In truth memory no longer *represents* our past to us, it *acts* it” (Bergson, 1910, p. 93).

In 1804 the philosopher Maine de Biran proposed the existence of three distinct kinds of memory with different properties, i.e. sensitive memory, representative (what we would call “declarative”) memory and mechanical (similar to what we would today label “procedural”) memory (Wilkinson & Jahanshahi, 2015). Amnesiacs are often good at learning rules and procedures useful to acquire skills, even if they cannot retain the information resulting from applying them (e.g., Cohen & Squire, 1980).

This procedural/episodic dissociation, recently uncovered by neuropsychologists, has long been known by movie script writers, being a signature of most amnesia movies, including the improbable *Random Harvest* (directed by Mervyn LeRoy, 1942) whereby an amnesic war veteran takes up jobs as demanding as news reporter and later (after his – *sic* – second amnesia) is elected to Parliament. In *Finding Nemo* (2003), the fish Dory instantaneously forgets everything. However, she is still capable of swimming happily and skillfully:

Dory: Hey there, Mr. Grumpy Gills. When life gets you down do you wanna know what you've gotta do?

Marlin: No I don't wanna know.

Dory: [singing] Just keep swimming. Just keep swimming. Just keep swimming, swimming, swimming. What do we do? We swim, swim.

The Italian director Nanni Moretti, in his movie, *Palombella Rossa* (1989), characterizes Michele, who, suddenly struck by amnesia, can nevertheless still play water polo as he used to. The same happens to Lucy, suffering from severe memory loss in *50 First Dates* (2004) and, yet, who shows no problems in performing everyday procedures. As is the case with most amnesiacs, she was trapped in a time loop. Exactly as the extraordinary case of Mr. B, the “absolute man of the present” as Störing calls him (1936; Craver, Graham, & Rosenbaum, 2014), who, due to carbon monoxide poisoning, could not retain any new information, however, his procedural memory appeared to be intact (Craver et al., 2014, p. 156).

The amnesic patient’s sense of a never-ending present reverberates in the fragmentary structure of *Memento* (2000). The film represents the amnesic syndrome of Sammy Jankis, a

“guy who couldn’t follow the plot of Green Acres any more” and yet “could do the most complicated things”, like injecting insulin into his diabetic wife, “as long as he learned them before the accident and as long as he kept his mind on what he was doing”. Unlike Sammy, H.M. had not only preserved his procedural memory, but was also capable of learning a variety of new procedural skills (Milner, 1962; Corkin, 1968). With H.M., it became clear that “amnesic patients are not so forgetful as was once thought” (Warrington & Weiskrantz, 1970, p. 628).

Adele: So what was your question?

Peter Appleton: I forget.

[They kiss to the crowd's applause]

The Majestic, Frank Darabent, 2001.

Hence, the amnesic character Peter Appleton (played by Jim Carrey) remembers how to kiss: a knowledge fully exploited by the apparently equally grave amnesic Miles Green, who in John Fowles’ novel *Mantissa*, is entertained with sensual therapies to help him recover his episodic memories:

Thomas: I woke up in the street. I don't know how I got there.

[He lights up]

Isabelle: [Excitedly noticing] You know how.

Thomas: Excuse me?

Isabelle: You know how to smoke.

Amateur, Hal Hartley, 1994.

Martin: "I didn't forget everything. I know how to kill you asshole."

Unknown, Jaume Collet-Serra, 2011.

Giancarlo: [Picking up an intricately done knot of rope] What's this?

You tie these knots? So it starts to come back, huh?

Jason Bourne: No, it doesn't start to come back. The knot's like everything else, I just found the rope and I did it. The same way I can

read, I can write. I can add, subtract. I can make coffee. I can shuffle cards. I can set up a chessboard.

The Bourne Identity, Doug Liman, 2002.

Samantha: [Surprised at being capable to expertly cut vegetables, although still amnesiac] Look at me! I am a chef! Give me something else!

The Long Kiss Goodnight, Renny Harlin, 1996.

The same surprise hit Vaughan, the amnesic main character of the novel “*The man who forgot his wife*” by John O’Farrell, when he realized that, even if he completely forgot his wife and everything else as well, as he himself states (p. 2), he could remember how to swim (“I can swim!”) he tells the lifeguard *delightedly* (p. 149)).

In *The Fifth Bullet* (the eleventh episode of the second season of the TV series *Castle*) detective Castle tracks down a possible witness to a murder who cannot however recall what he saw (and indeed who he is). In the story, a doctor explains that the witness’ procedural memory should be still intact, because he was walking and talking normally. Then, Castle snappishly asks the amnesic witness to sign a piece of paper. Other didascalic recounting of spared procedural memories in spite of very severe amnesia can be gleaned from thrillers, like de Prada’s *El séptimo velo* (The Seventh Veil) and Grangé’s *Le Passager*:

“It was a textbook lesion, like those used in university courses to explain the effect of retrograde amnesia, which ... spares other cognitive, perceptual, and motor skills” (own transl. from Italian version “*Il settimo velo*”, p. 301).

“The precision of the brush strokes reminded him of the pinscreen animation technique by Alexandre Alexeieff. He was overjoyed for that association; it meant that he didn’t forget everything. Corto said to him, ‘This was real. Indeed, you were a painter’” (own transl. from Italian version “*Amnesia*”, p. 391).

A psychoanalyst plays a crucial role in uncovering a procedural/episodic dissociation in *Spellbound* (1945). The doctor takes her patient, John Ballantyne (Gregory Peck), to the Gabriel Valley ski resort to reenact the traumatic event that likely had determined his dense amnesia, and to unlock his repressed memories. Ballantyne, although still amnesiac, expertly skis with her downhill.

A striking support of the procedural/episodic dissociation is observed any time dense amnesia affects people who use their procedural memory for professional goals (Wilkinson & Jahanshahi, 2015). The case of an accomplished actor, AB, who became amnesic has been recently described (Kopelman & Morton, 2015). “Memorizing becomes a big anxiety for stage actors going into their sixties and seventies” (*The Humbling*, P. Roth, 2009, J. Cape: London, p. 36). For AB it was even worse. Presented with passages from plays he had performed in the past, he did not explicitly recognize any of them nor did he have any autobiographical recall of having performed these passages before. Nonetheless, he showed a remarkable recall in relearning pieces he had previously performed, compared to new passages.

“It was like a miracle. He was remembering. His knowledge of his trade as a forger surfaced to his mind as easily as a swimmer who having spent thirty years on the mainland retains his gestures when plunging into the sea. How to account for such a prodigy? Was his knowledge as an artisan part of his cultural memory?” (J-C Grangé’s *Le Passager*; own transl. from Italian version “Amnesia”, p. 549).

“Sorjonen noted that Rytkönen remembered extraordinarily well all the technical details of his profession. He described to Skutarin the functioning of a protractor, showed him how to measure angles, and clarified the purpose of mirrors and prisms, as well as that of theodolites, compasses, and tangents. (*Elämä lyhyt, Rytkönen pitkä* – “Life Short, Rytkönen Long”, own transl from the Italian version, beautifully translated as “Lo smemorato di Tapiola” – The amnesiac from Tapiola – p. 166).

Similarly, professional expertise reveals that preserved procedural knowledge could also be coupled with impaired semantics. Odysseus’ talented sailors forgot their homeward way after having eaten the Lotus fruit, but they did not forget how to row.

“... and I bade the rest of my trusty comrades to embark with speed on the swift ships, lest perchance anyone should eat of the lotus and forget his homeward way. So they went on board straightway and sat down upon the benches, and sitting well in order smote the grey sea with their oars” (Homer. *The Odyssey*. Translation by A.T. Murray. Cambridge, MA., Harvard University Press; London, William Heinemann, Ltd. 1919).

The cases of musician Clive Wearing (Wilson, Baddeley, & Kapur, 1995) and of cellist PM who was unable to recall any famous cellist but could still sight-read and play his cello (Finke, Esfahani, & Ploner, 2012) demonstrated that these declarative/procedural dissociations may also have practical implications. For instance, they could be used to expose malingering. The most famous case of malingered retrograde amnesia ever known in Italy occurred in Turin in 1926, when a man appeared to have lost his autobiographical memory and his identity. The ‘walking enigma’, as the Italian comedian Totò labeled him in his film *Lo Smemorato di Collegno* (The Collegno Amnesic, 1962), was first identified as Giulio Canella, director of the Scuola Normale di Verona. Several renowned academics evaluated the case, but it was finally Alfredo Coppola who diagnosed “malingered retrograde amnesia” after testing his procedural memory. Giulio Canella was, indeed, a skilled piano player. On the contrary, a professional pianist, who was in charge to assess the amnesiac’s piano abilities, established that “the method of positioning his hands on the keyboard (...) leads one to believe that not only is the patient lacking in any kind of knowledge of piano playing technique, but that he sat at a piano for the first time in his life on the day of testing” (Zago, Sartori, & Scarlato, 2004, p. 529). The Collegno Amnesiac was later recognized as the petty crook and con man Mario Bruneri.

This case of mistaken identity seduced Luigi Pirandello who reworked it in *Come tu mi vuoi* (As you desire me, 1930). In the novel *Il teatro della memoria* (The memory theatre, 1981) Leonardo Sciascia went over the whole Collegno Amnesiac’s story. Sciascia was so puzzled by the mystery of memory that one year later drew inspiration from another case of usurped identity. The author happened to stumble upon the case of Martin Guerre, narrated by Montaigne in a passage of the *Essais*. Martin Guerre did not come home. A man took his identity and lived with Guerre’s wife for three years. Sciascia dramatized this case in *La sentenza memorabile* (The memorable verdict, 1982). The story of Martin Guerre continues to

be portrayed to this day in romantic dramas like *Le Retour de Martin Guerre* (1982) or *Sommersby* (1993). The false Martin Guerre accounted for his lack of acquaintance with the whereabouts and working of the house by claiming lapses of an otherwise remarkable memory, yet he showed no problems in carrying out daily procedures. Another famous case of imposture was that of Anna Anderson, who pretended to be the allegedly surviving Anastasia Nikolaevna Romanova and was believed by Romanova's relatives, as portrayed in the movie *Anastasia* (1956). However, in this case, being aware of the procedural/episodic dissociation would have led to exposing Anna's real identity: Anastasia was a piano player whereas Anna was not.

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